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Docket No.: 293775US0PCT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF:

GROUP: 1626

Juergen TROPSCH, et al.

SERIAL NO: 10/588,217

EXAMINER: F. POWERS

FILED: August 2, 2006

FOR: ALKYL ETHER SULFATES

DECLARATION UNDER 37 C.F.R. § 1.132COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313

SIR:

Now comes \_\_\_\_\_ Juergen Tropsch \_\_\_\_\_ who  
deposes and states that:

1. I am a graduate of Friedrich-Alexander-Universität Erlangen-Nuernberg  
and received my \_\_\_\_\_ Ph.D. \_\_\_\_\_ degree in the year  
\_\_\_\_\_ 1990 \_\_\_\_\_.

2. I have been employed by BASF SE \_\_\_\_\_  
\_\_\_\_\_ for 12 years as a \_\_\_\_\_ chemist \_\_\_\_\_  
\_\_\_\_\_ in the field of \_\_\_\_\_ surfactants \_\_\_\_\_.

3. The following experiments were carried out by me or under my direct supervision  
and control.

Comparative examples were prepared which show that the sulfated ethers based on i-  
C<sub>10</sub>-alcohol according to Verdicchio et al. are less effective as surfactants compared to the i-  
C<sub>10</sub>-alcohol based sulfates according to the present invention, as discussed in detail below.

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The ethersulfates based on i-C<sub>10</sub>-alcohol according to Verdicchio et al. have been prepared according to the general protocol for sulfating alcohols/alcohol alkoxylates according to page 21, lines 6 to 17 of the English description of the present application.

Alkyl ether sulfates based on i-C<sub>10</sub>-alcohols have been prepared using 3 equivalents of ethylene oxide (comparative example 1), 2 equivalents of propylene oxide followed by 2 equivalents of ethylene oxide (comparative example 2) and 2 equivalents of propylene oxide and 3 equivalents of ethylene oxide (comparative example 3). The critical micelle concentration (cmc) has been determined according to page 22, lines 1 and 2 of the description of the present application. The results of the comparative examples and of examples 4, 5 and 6 according to the table on page 21 of the description are shown in the following table:

Example	Alcohol	Amount PO [mol]	Amount EO [mol]	Cmc [mmol/l]
Comp. Ex. 1	i-C <sub>10</sub>	0	3	4.60
Comp. Ex. 2	i-C <sub>10</sub>	2	2	3.46
Comp. Ex. 3	i-C <sub>10</sub>	2	3	2.61
Example 4	i-C <sub>13</sub>	2	0	0.27
Example 5	i-C <sub>13</sub>	2	1	0.33
Example 6	i-C <sub>13</sub>	2	3	0.22

PO: propylene oxide

EO: ethylene oxide

cmc: critical micelle concentration

The alkyl ether sulfates according to Verdicchio et al. show high cmc of 4.60 mmol/l, 3.46 mmol/l and 2.61 mmol/l. In contrast, the inventive alkyl ether sulfates based on i-C<sub>13</sub>-alcohol show very low cmcs of 0.27 mmol/l (example 4), 0.33 mmol/l (example 5) or 0.22 mmol/l (example 6). In particular, example 6 being the inventive i-C<sub>13</sub>-alcohol propoxylated

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with 2 equivalents of propylene oxide followed by 3 equivalents of ethylene oxide shows a very low cmc of only 0.22 mmol/l, whereas directly comparable example 3, being the i-C<sub>10</sub>-alcohol according to Verdicchio et al., being alkoxyated with 2 equivalents of propylene oxide followed by 3 equivalents of ethylene oxide shows a high cmc of 2.61 mmol/l being about 12 times higher than the cmc of example 6 according to the present application. The cmc values were determined according to page 22, lines 1 and 2 of the present specification.

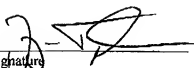
The examples according to the present invention and the comparative examples which have been prepared as described herein clearly show that the difference in respect of the alcohol, i-C<sub>13</sub> according to the present application versus i-C<sub>13</sub>-alcohol according to Verdicchio et al., shows an unexpected and surprising advantage. The cmc, which is a very important characteristic feature of a surfactant, can be decreased about 12 times.

Verdicchio et al. do not point in the direction that i-C<sub>13</sub>-alcohols forming the basis of alkyl ether sulfates make it possible to decrease the cmc of these compounds to 1/12 compared to the i-C<sub>13</sub>-alcohol. Therefore, substitution of i-C<sub>10</sub> according to Verdicchio et al. by i-C<sub>13</sub> according to the present application is not suggested to a person having ordinary skill in the art and also shows unexpected and significant advantages.

4. The undersigned petitioner declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

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5. Further deponent saith not.

  
\_\_\_\_\_  
Signature20.10/06/24  
\_\_\_\_\_  
Date